Editorial Index to Volume 216

January to December 1988

A

Annual Technical and economic review of European steelmaking. Sept 470

ATS Conference Report

The welcoming face of ATS Jan. 40

First results on view at ATS. Jan 40.41

Automotive Steels

Cooperative development shapes future for automotive steels by G M Davies and S J A Thompson. Apr 180

Engineering steels meet the challenge of the automotive industry by Ralph Beaumont. Apr 186

Cockerill Sambre development reflects auto industry evolution. Apr 193

Development of automotive steel products in Japan by Hiroyoshi Matsubara. Apr 194

B

Blast furnace refractories

Thermochemical attack in blast furnace refractory linings by D Kuster and J Schoennahl. Jan 42

BSC

Handling alloy additions at BSC Teesside Works' new ladle metallurgy plant. Jan 14.

Conversion of a bloom reheat furnace to regenerative burner firing by S Relph (BSC Cumbria. Mar 150

Dual aims for reheat furnaces are better quality and less energy by D F Hibberd (BSC Swinden Labs). Mar 154

Racking system rotates around swivelling telescopic crane for coil handling (Shotton). June 300

Air springing to cushion loads is feature of 65t coil carrier (Shotton). June 302

BSC Stainless radios for help. June 304

Ladle furnace commissioning extends secondary steelmaking. July 383

Horizontal caster for stainless commissioned at Panteg. Aug 422

Pre-coated steels keep corrosion at bay. Sept. 494

Use of carbon dioxide in steelmaking operations in British Steel. Sept 503

Horizontal caster opens up long products market for British Steel Stainless. Oct 540

C

Chemicals and reagents

Cost cutting and cleanliness: improvements in neutral electrolyte pickling. Nov 604

Slag foaming with diamide lime. Nov 607

Updated injection systems improve additive control. Nov 608

Cheaper and safer steel coating. Nov 610

New plant for mould powders. Nov 610

CO_2 in steelmaking

Use of carbon dioxide in steelmaking operations in British Steel by A S Normanton, D M Bryce, E Craggs and K McGregor. Sept 503

Coil coating and profiling

Three into one coating line is winning combination for FFM. Apr 211

Continuous Casting

Billet casters complete current phase steelmaking developments at Hoogovens. June 324

The ABC of continuous casting at Rotherham Engineering Steels by Robert A Day. Aug 407

Tube changing maintains sequence casting. Aug 420

Horizontal caster for stainless commissioned at Panteg. Aug 422

Llanwern caster means all UK integrated plants have CC. Aug 422

Larger width thin slabs demands second generation machines (Fourth International CC Conference). Aug 425

Ovako Steel modernises with two-strand bloom caster. Aug 437

Cutting and Joining

Zinc sheet for deep drawing is laser welded at Thyssen by W Prange, C Schneider and K Jack. Jan 25

Laser cutting at Staalcenter puts edge quality in new light. Jan 32

CC provides moving target for gas cutting development by D Wilkie and T E Moon. Jan 35

Computer controlled shearing lines will give accurate cutting to length at BHP. Jan 37

Slitting of electrical steel requires special approach. Jan 37

Add an Edge to oxy-cutting. Jan 38

Czechoslovakia

Burdened rather than burgeoning – an analysis of Czechoslovakian steel. Sep 489

E

Energy

Better BF operation depends on coke, coal and control. May 265

How a decade of support for energy saving reaped results by B P Taylor, D Martin, M Gettings and T Beirne. May 268

Planning errors spell energy waste at Katowice. May 270

Examining the case for variable speed drives by C G Cooksley. Aug 454

Energy saving in integrated steelworks depends on people and plant. Oct 548

Recovering energy from a blast furnace through a top gas turbine by F S Fisher. Oct 552

Pump efficiency monitoring promises big savings. Oct 554

Increasing productivity by using recuperators in ladle heating. Oct 558

Energy seminar report – The Heat is on. Dec 662

European File by Peter Wood

Tour of European steelworks puts industry in perspective for Commission. Jan 6

Better financial position of Hungarian steel means opportunities for international cooperation. Feb 61

Bouyant coil market accents Franco-German differences. Mar 122

Mer commits Usinor Salicor to joint venture structure. Apr 174

UK and Italy bad examples of EC subsidy says WVES. May 232

Loss making Finsider must prove no state aid. June 288

Finsider plan presented in teeth of subsidy challenges. July 344

Narjes arguments helped secure quota abolition. Aug 400

EC experts hold talks with Italian private sector. Sept 468

Hoogovens sales rise by £148M. Oct 526

Spanish quota not enough. Nov 580

Finsider plan protests but Italy will not budge. Dec 636

H

Handling in the iron and steel industry

Assessment system ensures safe handling of hazardous substances by P H Scholes. June 291

New stacking and bundling will wrap-up Sheerness extended range. June 297

Keeping overhead crane operation firmly on the rails by I A Walton. June 298

Racking system rotates around swivelling telescopic crane for coil handling (BSC). June 300

Mezzanine floors and the steel stockholder. June 300

Air springing to cushion loads is feature of 65t coil carrier (BSC). June 302

BSC Stainless radios for help. June 304

Three side-loading trucks serve weigh stations and sawing machines. June 304

Computer weighing-in-motion helps determine efficiency. June 306

Handling for ladle refining. June 306

Up and down enders for Korea. June 306

Using EOT cranes for handling steel. June 308

Other industries point way for lift trucks. June 308

Robotised handling and storage of coils by J C Groothuizen. July 368

Hoogovens

ECCS expands Hoogovens packaging steel commitment. Apr 208

Horizontal casting of stainless steel

Horizontal caster opens up long products market for British Steel Stainless. Oct 540

I

Ironmaking

Probing the blast furnace for better gas distribution by Werner Schneider. Apr 199

Years of planning underlay revamp of Sollac's 14m blast furnace, by Messrs Burteaux, Allaire, Boucou and Zambetti. Apr 205

Expert system in control at NKK Fukuyama Works blast furnace. Apr 207

L

Laboratory Automation

RES automates preparation and handling for spectrographic testing by J Hacon. May 235

The percent to per billion promise – Can laser sampling ICP-MS deliver? by R Ediger and J Hager. May 238

ICP and glow discharge MS widen laboratory service by C T Tye and P Barrett. May 240

Laboratory in a box will help automate spectrometer tests by G Johansson and J Petin. May 242

Management systems heralds the operatorless laboratory by G Pritchard. May 245

Production spectrometer puts quick check on alloy mixes by A Brauner, V Dreisbach and R Scheuffler. May 246

Laboratory plant and equipment. May 248

Ladle Metallurgy

Gas stirring or induction stirring? A fundamental decision in ladle furnace design by S M Cooper. Jan 13

Handling alloy additions at BSC Teesside Works new ladle metallurgy plant. Jan 14

Cored wire injection – a tool in ladle metallurgy. Jan 17

Adding stirring and alloy trimming to ladle facilities. Jan 17

Ladle refining at Ascometal mills. Jan 20

Desulphurisation using injection metallurgy at Baoshan. Jan 22

Spanish minimill opts for Elkem ladle furnace technology. Jan 24

M

Melting Pot by Keith Gale

Work, then and now. Manganese steel. High rise. Going places with steel. Jan 47

Plants and animals. Molten iron in boats. Unfair to the media? Feb 104

Rotherham Steel? The furnace that designed itself. Holiday tasks. Mar 157

Disappearing steelworks. Bessemer relics. The ram's horn test. Apr 212

Hot sawing. More floating iron. Slitting. May 272

Editorial Index to Volume 216

January to December 1988

A

Annual Technical and economic review of European steelmaking. Sept 470

ATS Conference Report

The welcoming face of ATS Jan. 40

First results on view at ATS. Jan 40.41

Automotive Steels

Cooperative development shapes future for automotive steels by G M Davies and S J A Thompson. Apr 180

Engineering steels meet the challenge of the automotive industry by Ralph Beaumont. Apr 186

Cockerill Sambre development reflects auto industry evolution. Apr 193

Development of automotive steel products in Japan by Hiroyoshi Matsubara. Apr 194

B

Blast furnace refractories

Thermochemical attack in blast furnace refractory linings by D Kuster and J Schoennahl. Jan 42

BSC

Handling alloy additions at BSC Teesside Works' new ladle metallurgy plant. Jan 14.

Conversion of a bloom reheat furnace to regenerative burner firing by S Relph (BSC Cumbria. Mar 150

Dual aims for reheat furnaces are better quality and less energy by D F Hibberd (BSC Swinden Labs). Mar 154

Racking system rotates around swivelling telescopic crane for coil handling (Shotton). June 300

Air springing to cushion loads is feature of 65t coil carrier (Shotton). June 302

BSC Stainless radios for help. June 304

Ladle furnace commissioning extends secondary steelmaking. July 383

Horizontal caster for stainless commissioned at Panteg. Aug 422

Pre-coated steels keep corrosion at bay. Sept. 494

Use of carbon dioxide in steelmaking operations in British Steel. Sept 503

Horizontal caster opens up long products market for British Steel Stainless. Oct 540

C

Chemicals and reagents

Cost cutting and cleanliness: improvements in neutral electrolyte pickling. Nov 604

Slag foaming with diamide lime. Nov 607

Updated injection systems improve additive control. Nov 608

Cheaper and safer steel coating. Nov 610

New plant for mould powders. Nov 610

CO_2 in steelmaking

Use of carbon dioxide in steelmaking operations in British Steel by A S Normanton, D M Bryce, E Craggs and K McGregor. Sept 503

Coil coating and profiling

Three into one coating line is winning combination for FFM. Apr 211

Continuous Casting

Billet casters complete current phase steelmaking developments at Hoogovens. June 324

The ABC of continuous casting at Rotherham Engineering Steels by Robert A Day. Aug 407

Tube changing maintains sequence casting. Aug 420

Horizontal caster for stainless commissioned at Panteg. Aug 422

Llanwern caster means all UK integrated plants have CC. Aug 422

Larger width thin slabs demands second generation machines (Fourth International CC Conference). Aug 425

Ovako Steel modernises with two-strand bloom caster. Aug 437

Cutting and Joining

Zinc sheet for deep drawing is laser welded at Thyssen by W Prange, C Schneider and K Jack. Jan 25

Laser cutting at Staalcenter puts edge quality in new light. Jan 32

CC provides moving target for gas cutting development by D Wilkie and T E Moon. Jan 35

Computer controlled shearing lines will give accurate cutting to length at BHP. Jan 37

Slitting of electrical steel requires special approach. Jan 37

Add an Edge to oxy-cutting. Jan 38

Czechoslovakia

Burdened rather than burgeoning – an analysis of Czechoslovakian steel. Sep 489

E

Energy

Better BF operation depends on coke, coal and control. May 265

How a decade of support for energy saving reaped results by B P Taylor, D Martin, M Gettings and T Beirne. May 268

Planning errors spell energy waste at Katowice. May 270

Examining the case for variable speed drives by C G Cooksley. Aug 454

Energy saving in integrated steelworks depends on people and plant. Oct 548

Recovering energy from a blast furnace through a top gas turbine by F S Fisher. Oct 552

Pump efficiency monitoring promises big savings. Oct 554

Increasing productivity by using recuperators in ladle heating. Oct 558

Energy seminar report – The Heat is on. Dec 662

European File by Peter Wood

Tour of European steelworks puts industry in perspective for Commission. Jan 6

Better financial position of Hungarian steel means opportunities for international cooperation. Feb 61

Bouyant coil market accents Franco-German differences. Mar 122

Mer commits Usinor Salicor to joint venture structure. Apr 174

UK and Italy bad examples of EC subsidy says WVES. May 232

Loss making Finsider must prove no state aid. June 288

Finsider plan presented in teeth of subsidy challenges. July 344

Narjes arguments helped secure quota abolition. Aug 400

EC experts hold talks with Italian private sector. Sept 468

Hoogovens sales rise by £148M. Oct 526

Spanish quota not enough. Nov 580

Finsider plan protests but Italy will not budge. Dec 636

H

Handling in the iron and steel industry

Assessment system ensures safe handling of hazardous substances by P H Scholes. June 291

New stacking and bundling will wrap-up Sheerness extended range. June 297

Keeping overhead crane operation firmly on the rails by I A Walton. June 298

Racking system rotates around swivelling telescopic crane for coil handling (BSC). June 300

Mezzanine floors and the steel stockholder. June 300

Air springing to cushion loads is feature of 65t coil carrier (BSC). June 302

BSC Stainless radios for help. June 304

Three side-loading trucks serve weigh stations and sawing machines. June 304

Computer weighing-in-motion helps determine efficiency. June 306

Handling for ladle refining. June 306

Up and down enders for Korea. June 306

Using EOT cranes for handling steel. June 308

Other industries point way for lift trucks. June 308

Robotised handling and storage of coils by J C Groothuizen. July 368

Hoogovens

ECCS expands Hoogovens packaging steel commitment. Apr 208

Horizontal casting of stainless steel

Horizontal caster opens up long products market for British Steel Stainless. Oct 540

I

Ironmaking

Probing the blast furnace for better gas distribution by Werner Schneider. Apr 199

Years of planning underlay revamp of Sollac's 14m blast furnace, by Messrs Burteaux, Allaire, Boucou and Zambetti. Apr 205

Expert system in control at NKK Fukuyama Works blast furnace. Apr 207

L

Laboratory Automation

RES automates preparation and handling for spectrographic testing by J Hacon. May 235

The percent to per billion promise – Can laser sampling ICP-MS deliver? by R Ediger and J Hager. May 238

ICP and glow discharge MS widen laboratory service by C T Tye and P Barrett. May 240

Laboratory in a box will help automate spectrometer tests by G Johansson and J Petin. May 242

Management systems heralds the operatorless laboratory by G Pritchard. May 245

Production spectrometer puts quick check on alloy mixes by A Brauner, V Dreisbach and R Scheuffler. May 246

Laboratory plant and equipment. May 248

Ladle Metallurgy

Gas stirring or induction stirring? A fundamental decision in ladle furnace design by S M Cooper. Jan 13

Handling alloy additions at BSC Teesside Works new ladle metallurgy plant. Jan 14

Cored wire injection – a tool in ladle metallurgy. Jan 17

Adding stirring and alloy trimming to ladle facilities. Jan 17

Ladle refining at Ascometal mills. Jan 20

Desulphurisation using injection metallurgy at Baoshan. Jan 22

Spanish minimill opts for Elkem ladle furnace technology. Jan 24

M

Melting Pot by Keith Gale

Work, then and now. Manganese steel. High rise. Going places with steel. Jan 47

Plants and animals. Molten iron in boats. Unfair to the media? Feb 104

Rotherham Steel? The furnace that designed itself. Holiday tasks. Mar 157

Disappearing steelworks. Bessemer relics. The ram's horn test. Apr 212

Hot sawing. More floating iron. Slitting. May 272

Editorial Index to Volume 216 Continued

January to December 1988

Mushet's special steel. Burning on. Delight in work. Stainless reputation. June 328
Stainless seventy five. Stainless steel: a personal experience. Another Bessemer relic. Tandem furnaces. July 388
Big in every way. Beating 10kt by 10%. Seven hundred not out. Breaking things in a big way. Aug 455
Fagersta converter. Thomas process in Europe. Wrought iron makes a comeback. Killing time. Sept 512
Cast model of the iron bridge. Bar to recruitment. Bessemer again. Oct 563
Continuous rolling. Cast iron makes its mark. Cut and shut. Nov 615
Duplexing. Croppers and squeezers. Bessemer – the complete tally? Dec 667

Metal Cleanliness
Experience with various calcium treatments of steel. Mar 124
Basic refractories meet rigorous demands of secondary steelmaking ladles by P Williams, P Dawson and T W Lythe. Mar 128
Ladle metallurgy in the new Hagondage melt-shop. Mar 134
RH-Injection process combines degassing and powder injection. Mar 142
Control of metallurgical cleanness of steel in the VOD process by Dr-Ing K Mamro *et al.* Mar 144
Directional porous plugs meet ladle refining by J Schoennahl and C Naturel. Mar 147

O
Open Europe
Steel industry in transition – current situation and solutions by Karl-Heinz Narjes. May 230

Oxygen steelmaking
Cheaper hot metal would defend LD against EAF inroads. Dec 650
World LD steelmaking capacity survey. Dec 651
Operational behaviour influences converter design. Dec 654
Conversion of a 300t vessel to K-OBM at Dofasco. Dec 659

P
Pilot plant to production
K-ES uses fossil fuels to boost productivity and reduce electricity consumption by E Fritz, V Pawliska, I Yamagi and G Strohmeier. May 250
Retrofitting experience at Nucor gives greenfield Consteel confidence to Florida Steel by John A Vallomy. May 254
Rail heat-treatment plant at BSC Cumbria relies on sensible heat as only energy source. May 255
Plasma treatment for recovery of steel plant dusts. May 258
Uninterrupted electrical supplies for steel plants. May 264

Project management
New plant from old makes profitable steel. (Conference report). Dec 638
Plant operator's role in plant improvement by Brian Moffatt. Dec 647
Engineering contractor's role in plant improvement by Roger Kingdon. Dec 648

R
Raw Materials
Evaluation of the economics of sinter as BF charge material in Japan by Yasushi Ishikawa. June 310
Smelting and melting of ferroalloys in a plasma furnace. June 314
Pelletised sintering produces permeable charge material from fine ores. June 315
Burner design yields energy savings in sintering. June 315
DR growth shelters 61% capacity utilisation. June 316
Granulation offers convenience and process advantages. June 322

Reheat Furnaces
Induction reheating in steel mills by A S Leary. Mar 149
Conversion of a bloom reheat furnace to regenerative burner firing by S Relph. Mar 150
Dual Aims for reheat furnaces are better quality and less energy by D F Hibberd. Mar 154
Plastic castable refractories meet reheat needs. Mar 155

Rolling
Roll turning, grinding and texturing mill rolls. Jan 46
Automating roll pass design for rounds by A Izzo July 385
Hot strip mill reconstruction. Nov 582
Work roll shifting devices fitted to a hot strip mill. Nov 590
Recent developments for advanced rolling mills by Tomoaki Kimura and Nobuhiro Fujino. Nov 593
Improving the quality of rolled bars using the three-roll precision sizing block. Dec 661
Sizing press versus vertical roll edger. Dec 661

S
Section measurement – casting light on. Feb 98

Service Centre
Dunlop & Ranken to raise its profile in plate. Jan 49
NASS urges Chancellor to consider rates reform and reduce transport costs. Feb 105
Stainless demand supports Avesta investment. Mar 160
Acquisition of Robert Frazer marks diverisification for ASD. Apr 216
Old network stockholding system is replaced by central computer. May 273
Bullish NASS report says market set fair. June 330
New steel stockholders sets up to serve the East Midlands and South Yorkshire. July 389
£100,000 investment by Crew Sillavan. Aug 458
Armstrong makes contributors to Richardsons Westgarth success. Sept 512
ASD turnover up but stockholding profits disappoint. Oct 568
Coil slitting and winding tailored to suit service centres. Nov 616
£1M investment to stay competitive. Nov 617
New warehouse for hollow sections prompted by single Barrett account. Dec 670
NASS President warns stockholders, "We still have much to learn." Dec 671

Stainless
Harry Brearley – Entrepreneur. Nov 596

Steel by design
Pre-coated steels keep corrosion at bay. Sept 494
Sandwiched sheet for a quiet life. Sept 501
Tapered plates bridge the gap. Sept 502

Steelmaking by electricity
Electricity consumption cut and productivity boosted with furnace roof barriers. July 374
Continuous EAF steelmaking could rotate around handling cost. July 378
Electroslag heating in ladle or tundish could join secondary steelmaking tools. July 381
Ladle furnace commissioning extends secondary steelmaking. July 283
Improving the environment for electric steelmakers. July 283

Stockholding
Forging the new relationship with FIANATM. Aug 438
Stockholders market share holds steady over Europe. Aug 438
Minimills seek closer relationship with stockholders. Aug 440
Tubes market holds up. Aug 442
Stainless is fun again! Aug 445
Unified European market remains a major hurdle for stockholders. Aug 446
Does the stockholder carry the can for product liability. Aug 448
Users demand total quality approach to match modern manufacturing techniques. Aug 450
Spotlight firmly on end user is BSC message. Aug 451
Preserving the balance in the UK stockholding market, Michael Worley, NASS President. Aug 452
You need have no fear that British Steel is about to gobble you up, Martin Llowarch, CEO, British Steel. Aug 453

Strip Welding
Welded coil joining in continuous processing lines. Nov 602

Structural Steels
HSLA steels in construction. Oct 528
Steel Construction Institute supports structural steel. Oct 532
Epoxy coated reinforcement bar fights concrete 'cancer.' Oct 538
Iron oxide paints still fight corrosion. Oct 539

Supplements
The Heat is On. Sept

T
Tinplate
Tinplate: tailored for packaging by C J Evans. Feb 86
Tension levellers in tinplate process lines. Feb 88
Can-making research facility will duplicate commercial production for BSC Tinplate. Feb 90
Hoogovens explores laser measuring on tinplate lines. Feb 90
Trostre Works continuous annealing line will serve tinplate market. Feb 91
High efficiency chrome plating cell for tinfree coating installations. Feb 93
Tinplaters react to moves from sheet to strip. Feb 94
Hot dipped tinned steel sheet looks forward to revival. Feb 94
Tumbling walls. Oct 561

Turkey
Iron and steel industry in Turkey achieves world record growth by Arif Onat. July 346
Flat rolled capacity of 5Mt planned by Erdemir. July 348
Major expansion studies for Turkish State steel. July 352
Turkey's largest minimill is a technology pioneer. July 354
Raw materials bestow further advantage to Turkey. July 358
Rapid growth for special steelmaker. July 360
IDC adds 450,000t steelmaking capacity to rolling facilities. July 362
Pipe specialist grows by demand. July 364
Continuous casting is just the beginning for Cemtas. July 366
Longitudinal ERW tube mill commissioned by Umran on Black Sea Coast. July 370

U
UK Independent steelmaking
Good year for UK independent steel. Feb 64
'Unacceptable' energy policies could sap UK steel industry. Feb 66

Europe censored but wrath is reserved for energy suppliers. Feb 68
International markets for forging shapes Forgemasters' investments. Feb 74
Shotblasting lets Bright Bar clean up. Feb 74
Plan for TWIL is expand and modernise. Feb 74
Close observation at ASW gives cause to look forward. Feb 76
Barworth Flockton extend forging capacity at Ecclesfield. Feb 82
Energy down and quality up at Carr. Feb 82
Martins back on course for modernisation. Feb 82
UES updates and readies for Aldwarke. Feb 84
Bright drawing at Brasway. Feb 84
Sheerness plans span scrap to finishing. Feb 84

List of Authors to Editorial Index – Volume 216

Allaire Apr 205
Barrett P May 240
Beaumont Ralph Apr 186
Boucou Apr 205
Brauner A May 246
Burteaux Apr 205
Cooksley C G Aug 454
Cooper S M Jan 13
Davies G M Apr 180
Dawson P Mar 128
Day Robert Aug 407
Dreisbach V May 246
Ediger R May 238
Evans C J Feb 86
Fritz E May 250
Gale Keith Jan 47, Feb 104, Mar 157, Apr 212, May 272, June 328, July 388, Aug 455, Sept 512, Oct 563, Nov 615, Dec 667
Groothuizen J C July 368
Hacon J May 235
Hager J May 238
Hibberd D F Mar 154
Ishikawa Yasushi June 310
Izzo A July 385
Jack K Jan 25
Johansson G May 242
Kimura Tomoaki Nov 593
Kingdon Roger Dec 648
Kuster D Jan 42
Leary A S Mar 149
Lythe T W Mar 128
Mamro Dr-Ing K Mar 144
Matsubara Hiroyoshi Apr 194
Moffatt Brian Dec 647
Moon T E Jan 35
Narjes Karl-Heinz May 230
Naturel C Mar 147
Normanton A S et al Sept 503
Onat Arif July 346
Petin J May 242
Prange W Jan 25
Pritchard G May 245
Relph S Mar 150
Scheuffler May 246
Schneider C Jan 25
Schneider Werner Apr 199
Schoennahl J Jan 42, Mar 147
Scholes P H June 291
Taylor P B May 268
Thompson S J A Apr 180
Tye C T May 240
Vallomy John A May 254
Walton I A June 298
Wilkie D Jan 35
Williams P Mar 128
Wood Peter Jan 6, Feb 61, Mar 122 Apr 174, May 232, June 288, July 344, Aug 400, Sept 468, Oct 526, Nov 580 Dec 636
Zambetti Apr 205

REPRINTS
REPRINTS
REPRINTS
REPRINTS
REPRINTS
REPRINTS

Advertisements and articles which have appeared in the JOURNAL can be printed at competitive prices. For an instant quotation call COLIN EDWARDS at Redhill (0737) 768611 ext 3350 with your requirements